What is claimed is:

1. A method for converting color images to textured monochrome images such that regions with similar luminance but different chrominance appear different when converted to black-and-white, comprising:
   a) converting the color image to a luminance-chrominance color space;
   b) performing a wavelet transformation of the luminance channel;
   c) replacing a predetermined number of sub-bands by scaled versions of the chrominance channels; and
   d) inverting the transformation to generate artificial textures proportional to the original colors of the color image.

2. A method, as defined in **claim 1**, wherein the luminance-chrominance color space is either YCbCr or Lab.

3. A method, as defined in **claim 1**, further comprising mapping neutral colors to neutral wavelet coefficient values.

4. A method, as defined in **claim 1**, further comprising replacing colors that are significantly different with significantly different textures.

5. A method, as defined in **claim 1**, wherein the number of sub-bands replaced is minimally two, one for Cb and one for Cr.

6. A method, as defined in **claim 1**, further comprising incorporating a C plane into the image as an extra chrominance plane that can be used to replace yet another sub-band with C incorporating only positive (or negative) values of either Cb or Cr.

7. A method, as defined in **claim 1**, further comprising decomposing the chrominance into 4 channels having positive and negative values, such that: Cb+ = Cb u(Cb); Cb- = -Cb u(-Cb); Cr+ = Cr u(Cr); Cr- = -Cr u(-Cr).

8. A method, as defined in **claim 1**, further comprising decomposing the chrominance into any number of channels, from 1 to N-1, where N is the total number of sub-bands wherein the channels represent chrominance information in the original image.

9. A method, as defined in **claim 1**, further comprising, preserving the wavelet coefficients with the largest magnitude either coming from the wavelet transform or from the chrominance plane.

10. A method, as defined in **claim 9**, further comprising using the following for preserving said largest magnitude coefficients: new_wavelet(b,i,j) = max(old_wavelet(b,i,j), chrominance(i,j)).

11. A method for recovering a color image from a black-and-white image embedded with chrominance information reproduced from the color image, comprising:
    a) obtaining electronic image data of said black-and-white image embedded with chrominance information applying a first transformation to said image data;
    b) calculating wavelets from the first transformed data;
    c) recovering chrominance information from said calculated wavelets;
    d) recovering luminance information from said calculated wavelets; and
    e) combining the recovered chrominance and luminance information.

12. A method, as in **claim 11**, wherein the encoded chrominance information comprises a plurality of wavelet sub-bands.

13. A method, as in **claim 11**, wherein the encoded chrominance information comprises positive and negative values of Cr and positive and negative values of Cb.

14. A method, as in **claim 11**, wherein the applied first transformation comprises a distortion-correcting affine transform.

15. A method, as in **claim 11**, wherein the recovering of chrominance information comprises recombining positive and negative values of Cb and positive and negative values of Cr.

16. A method, as in **claim 12**, wherein the recovering of luminance information comprises zeroing all chrominance-loaded wavelet sub-bands.

17. A method, as in **claim 11**, wherein the first transformation comprises sharpening the image before calculating wavelets therefrom to account for printing and scanning resolution, degradation, and defects.

18. A method, as in **claim 11**, wherein the recovering of luminance information and chrominance information comprises an inverse transformation thereof.

19. A method, as in **claim 11**, further comprising a post-processing transformation of the color image.

20. A method, as in **claim 19**, wherein the transformation comprises increasing the saturation of said color image.

21. A method, as in **claim 19**, wherein the transformation comprises applying a sharpening filter to said recovered luminance information to counteract any loss of sharpness.

22. A method, as in **claim 19**, wherein the transformation comprises applying a noise-reducing filter to said recovered chrominance to reduce noise introduced by the reconstruction of the color image.

23. A system for recovering a color image from a black-and-white image reproduced from said color image, comprising:

a CPU, Memory, and Storage;

a Scanner for obtaining electronic image data of the black-and-white image; and

a Software Program performing:

a) applying a first transformation to said image data;

b) calculating wavelets from the first transformed data;

c) recovering chrominance information from said calculated wavelets;

d) recovering luminance information from said calculated wavelets; and

e) combining the recovered chrominance and luminance information.

24. A system, as in **claim 23**, wherein the encoded chrominance information comprises a plurality of wavelet sub-bands.

25. A system, as in **claim 23**, wherein the encoded chrominance information comprises positive and negative values of Cr and positive and negative values of Cb.

26. A system, as in **claim 23**, wherein the applied first transformation comprises a distortion-correcting affine transform.

27. A system, as in **claim 23**, wherein the recovering of chrominance information comprises recombining positive and negative values of Cb and positive and negative values of Cr.

28. A system, as in **claim 27**, wherein the recovering of luminance information comprises zeroing all loaded wavelet sub-bands.

29. A system, as in **claim 28**, wherein the first transformation comprises sharpening the image before calculating wavelets therefrom to account for printing and scanning resolution, degradation, and defects.

30. A system, as in **claim 28**, wherein the recovering of luminance information and chrominance information comprises an inverse transformation thereof.

31. A system, as in **claim 28**, further comprising a post-processing transformation of the color image.

32. A system, as in **claim 31**, wherein the transformation comprises increasing the saturation of said color image.

33. A system, as in **claim 31**, wherein the transformation comprises applying a sharpening filter to said recovered luminance information to counteract any loss of sharpness.

34. A system, as in **claim 31**, wherein the transformation comprises applying a noise-reducing filter to said recovered chrominance to reduce noise introduced by the reconstruction of the color image.